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UNITED STATES DEPARTMENT OF AGRICULTURE,
BUREAU OF PLANT INDUSTRY,
OFFICE OF FOREIGN SEED AND PLANT INTRODUCTION.

NO. 68.

BULLETIN OF FOREIGN PLANT INTRODUCTIONS.

October 1 to 31, 1911.

NEW PLANT IMMIGRANTS.

(NOTE: Applications for material listed in this bulletin may be made at any time to this Office. As they are received they are filed, and when the material is ready for the use of experimenters it is sent to those on the list of applicants who can show that they are prepared to care for it, as well as to others selected because of their special fitness to experiment with the particular plants imported.

One of the main objects of the Office of Foreign Seed and Plant Introduction is to secure material for plant experimenters, and it will undertake as far as possible to fill any specific requests for foreign seeds or plants from plant breeders and others interested.)

GENERA REPRESENTED IN THIS NUMBER.

Anona.	Coccolobis.	Euphoria.	Medicago.
Astragalus.	Crotalaria.	Hedysarum.	Ocimum.
Bambos.	Cytisus.	Hordeum.	Oryza.
Chrysanthemum.	Dioscorea.	Ipomoea.	Prunus.
Cicer.	Elaeagnus.	Linum.	Spathodea.
Citrus.	Eruca.	Mangifera.	Triticum.

S. P. I. NUMBERS INCLUDED IN THIS NUMBER.

31780-798, 31811-815, 31817-820, 31822-832, 31868, 31908-923, 31929, 31931, 31936-938, 31941, 31946-954, 31978, 31981, 31985-999, 32001, 32006, 32008, 32012-013, 32018, 32026-028, 32033-034.

PLATE: ELAEAGNUS AUGUSTIFOLIA. OLEASTER.

ANONA SPP. (Anonaceae.) 31929, 32033-034. Seeds of anonas from Costa Rica. Presented by Mr. Carlos Wercklé, San Jose. 31929. Anona purpurea. 32033-034. Species undetermined. All introduced for the work of this Office in testing all obtainable forms of this valuable genus. For distribution later.

ANONA SPP. (Anonaceae.) 31978, 32018. Seeds of anonas from Cuba. Presented by Mr. Robert L. Luáces, agricultural engineer, Camaguey, Cuba. Introduced like the preceding. For distribution later.

ASTRAGALUS SP. (Fabaceae.) 32027. Roots of astragalus from near Ust-Kamenogorsk, southwestern Siberia. "A small astragalus quite common on rocky and sterile places. Is eagerly browsed upon by horses and cattle. May possess value as a forage plant in semi-arid regions where irrigation is not practicable and where the soil is stony and sterile." (Meyer's introduction.) For distribution later.

BAMBOS SP. (Poaceae.) 32028. Seeds of a bamboo from Abyssinia. Presented by Dr. A. Robertson Proschowsky, Nice, France. For distribution later.

CHRYSANTHEMUM CINERARIAEFOLIUM. (Asteraceae.) 32012-013. Seeds of pyrethrum from Dalmatia. Presented by Mr. K. Portele, Imperial Ministry of Agriculture, Vienna, Austria. "This species grows wild here in Dalmatia and is also cultivated." From Cattaro and Ragusa respectively. Introduced for the work of the Office of Drug Plant Investigations in growing the various insectifuge plants in this country. For distribution later.

CICER ARIETINUM. (Fabaceae.) 31797-798. Seeds of chick-peas from Kokand, Russian Turkestan. Two varieties both grown on rather alkaline lands and perhaps suited for similar soils in the Southwest. (Meyer's introductions.) For distribution later.

CITRUS SP. (Rutaceae.) 31981. Seeds of a citron from Nagpur, Central Provinces, India. Procured by Mr. R. S. Woglum, of the Bureau of Entomology. "'Zamburi.' Sour citron. The chief stock budded on in the Central Provinces, India. The fruit is sour like a lemon and has a yellow colored rind. In appearance, color, taste, and character of flesh it is very similar to a California Eureka lemon allowed to overmature on the tree." (Woglum.) For distribution later.

COCCOLOBIS SP. (Polygonaceae.) 31931. Seeds of a "carro-caliente" from the mountains of Costa Rica. Presented by Mr. Carlos Wercklé, San Jose. "An interesting Coccoloba with small leaves and fine fruit." (Wercklé.) For distribution later.

CROTALARIA SPP. (Fabaceae.) 31999-32001. Seeds from Buitenzorg, Java. Presented by the Department of Agriculture at the request of Prof. C. V. Piper of this Bureau. Introduced for trial as cover crops from the Buitenzorg Garden, where special attention is being paid to the problem of green manures. For distribution later.

CROTALARIA SP. (Fabaceae.) 31941. Seeds from Puerto Bertoni, Paraguay. Presented by Dr. Moises S. Bertoni, Estacion Agronomica. Introduced for trial with the preceding and other green manure crops. For distribution later.

CYTISUS PROLIFERUS. (Fabaceae.) 31951-952. Seeds of the "escobon" from Grand Canary and Teneriffe, Canary Islands. Presented by Dr. George. V. Perez, Puerto Orotava, Teneriffe. Two forms, both of which are used as forage for goats, but not as good as tagasaste. Suggested for growing in the mountains of Southern California. For distribution later.

DIOSCOREA SPP. (Dioscoreaceae.) 31914-923. Tubers of twelve yams from Port Moresby, Papua. Presented by Mr. J. A. Hamilton. "Native yams of splendid food value." (Hamilton.) For distribution later.

ELAEAGNUS ANGUSTIFOLIA. (Elaeagnaceae.) 31822. Seeds of oleaster from Upal, Chinese Turkestan. "The oleaster is mostly seen as a tall shrub, but in good situations grows even to a fair-sized tree. Taken all around it is perhaps the most useful tree in Chinese Turkestan. It supplies excellent hedges, almost impenetrable to man and beast when well kept. From the branches stuck in the ground in slanting and zigzag fashion, very good temporary fences can be made. As a windbreak it is unexcelled, keeping the drying desert winds off from the cultivated lands of the oases. As a sand-binder it is of very great value, checking blowing and encroaching desert sands to a great extent, also where wash-outs are experienced its masses of fibrous roots retain the soil a good deal. Its wood constitutes in many oases the chief fuel supply, and to furnish this firewood the trees are pollarded every four to six years without suffering. The wood, when dry, possesses fine heating capacities and makes a good bed of live coals which last during the whole night

when covered up with ashes. The fruits of the wild form are too astringent to be of any value to man, but some of the cultivated forms supply a sweetmeat to children. The dry cast-off leaves are a favorite food of sheep, goats, donkeys and cattle. The flowers possess a remarkably sweet odor and seem to be rich in honey. Its highly ornamental qualities, combined with drought and alkali resistant capacities, put it in the first order as a desirable garden and park shrub or tree in the more arid parts of the United States. Its silvery-gray foliage resembles the olive very much, while in autumn the contrast between it and the multitude of generally orange-red colored small fruits, is gloriously beautiful. The habit of this oleaster is extremely variable. The majority of the trees acquire gracefully drooping habits when getting older; some, however, assume quite rigid outlines. The size of the fruits varies also considerably, ranging from that of a pea up to the size of an ordinary date; the color of the berries is pure white on one tree while dark brown red on another and all shades are found between. In the leaves even there is a considerable variation, as regards sizes, nuances of gray-green and the relative quantity a tree may possess. The roots are sometimes a mass of nodules, and as the trees grow often quite luxuriantly even in pure sand, they seem to derive nutrition from these tubercles and perhaps even fertilize the soil to some extent. One notices, for instance, that crops even close up to a row of oleaster trees are not impoverished to any extent. For this reason the natives of Central Asia seem to prefer this tree to any other sort of windbreak. The plants are very well able to grow even in pure sand, or in alkaline soils, while they exist with very little water although they do not grow luxuriantly then. They cannot stand, however, low, water-logged soils. The propagation is easy. Cuttings from the size of a lead pencil up to poles six feet long and two to three inches thick, all strike roots easily as long as the soil is moist enough to give them a chance. In regions of the United States where the summers are very hot and dry and the winters not too cold, where the soils are sandy or alkaline, but where irrigation water is occasionally supplied, the oleaster deserves the highest consideration for the following purposes: as a hedge plant, as a fence material, as a windbreak, as a sandbinder, and as a characteristic ornamental tree arcund the home." (Meyer's introduction.) See half-tone. For distribution later.

ERUCA SATIVA. (Brassicaceae.) 31819-820. Seeds from Chinese Turkestan. Two varieties from different oases, "the oil of which is used both for culinary and illuminating

purposes. To be tested as a possible crop for the intermountain regions." (Meyer's introductions.) For distribution later.

EUPHORIA LONGAN. (Sapindaceae.) 32006. Seeds of the longan from Kia-ying chau, China. Presented by Mr. George Campbell. "Fruit small, in large bunches, very sweet, not first-class. Tree handsome and may be used as a shade tree; also is used as a stock on which to bud the leitchee." (Reasoner.) For distribution later.

HEDYSARUM SPLENDENS. (Fabaceae.) 32026. Roots from near Ust-Kamenogorsk, southwestern Siberia. "A rare and interesting legume occurring on stony mountain slopes here and there along the Irtish River. May possess value as a forage plant in semi-arid regions where irrigation is not practicable and where the soil is stony and sterile." (Meyer's introduction.) For distribution later.

HORDEUM SPP. (Poaceae.) 31792-796, 31868. Seeds of barleys from Chinese Turkestan. Winter and summer, hulled and hull-less varieties, some of them able to stand considerable drought and alkali. (Meyer's introductions.) For distribution later.

IPOMOEA BATATAS. (Convolvulaceae.) 31985-31998. Tubers of sweet potatoes from Peru. Presented by Mr. Antonio Graña, Huando, Chancay, Peru. Fourteen varieties producing in from four to six months. "Sweet potatoes which bear different names by which they are known by the people of the country without indicating thereby any scientific classification. Neither are they grown as distinct varieties, but they are produced mixed together." (Graña.) For distribution later.

IPOMOEA BATATAS. (Convolvulaceae.) 31908-913. Tubers of sweet potatoes from Tauranga, New Zealand. Presented by Mr. W. C. Berridge, manager, Experimental Farm, Tauranga. Six varieties commonly grown by the Maoris. For distribution later.

LINUM USITATISSIMUM. (Linaceae.) 31817-818. Seeds of flax from Chinese Turkestan. Seeds of two varieties grown as oil crops , but not for the fiber. The oil is used for culinary purposes largely, and when fresh is very palatable. (Meyer's introductions.) For distribution later.

MANGIFERA INDICA. (Anacardiaceae.) 31936-938. Seeds of mangos from the Philippine Islands. Received through

Prof. C. V. Piper, of this Bureau. Selected varieties recommended for trial. For distribution later.

MANGIFERA INDICA. (Anacardiaceae.) 31946-950. Cuttings of mangos from Monghyr, North India. Purchased from Mr. Lalit Mohan Sinha, Monghyr. Introduced as the best varieties of north Indian mangos not yet in our mango collection. For distribution later.

MEDICAGO SATIVA. (Fabaceae.) 31811-815. Alfalfa seeds from Kashgar, Khanaka, and Khotan, Chinese Turkestan. Among these are forms apparently unusually hardy, others needing less than usual irrigation, another which continues to grow until frost. The young shoots of all these forms are eaten by both natives and foreigners prepared like spinach. (Meyer's introductions.) For distribution later.

OCIMUM VIRIDE. (Menthaceae.) 32008. Seeds of the West African "Mosquito plant", from Southern Nigeria. Presented by Mr. W. H. Johnson, director, Agricultural Department, Ibadan, Southern Nigeria. "This is the West African 'Mosquito plant'. This plant is known locally to possess valuable qualities as an insectifuge, but I think its use is really not much practised by the natives. The foliage is usually hung up in dwelling houses in the green state to keep away mosquitoes; the dried plant is also burned and the resulting smoke is considered to be useful for the same purpose." (J. W. Henderson, Acting Director, Department of Agriculture.) This seed was introduced in response to numerous requests from the South, for the widely advertised 'Mosquito plant' supposed to be so commonly used throughout tropical West Africa. For distribution later.

ORYZA SATIVA. (Poaceae.) 31823-832. Seeds of rice from Chinese Turkestan. Among these ten varieties are some which ripen early, others which do well on alkaline soils, while one in particular is said to ripen in ten weeks from date of sowing. (Meyer's introductions.) For distribution later.

PRUNUS BRIGANTIACA. (Amygdalaceae.) 31954. Seeds from Alpes Maritimes, France. Presented by Dr. F. Mader, Nice, France. "The species is very hardy, as the Barcelonnette Valley, where it especially abounds, has an almost Siberian climate(frequently 8° F. and lower in the winter, and up to 95° F. in the summer.) It is the true Briançon plum of French foresters, being now extensively planted in the high valleys, and has proved to be excellent for sheltering river banks, road sides, stony ravines, or avalanche beds. The fruit is

free from sweetness and nearly insipid, but would be suitable for marmalades, etc." (Mader.) For distribution later.

SPATHODEA CAMPANULATA. (Bignoniaceae.) 31953. Seeds from Java. Received through Dr. B. T. Galloway, Chief, Bureau of Plant Industry. "A tall, erect tree from western tropical Africa. Its large, orange-red, erect flowers, produced at the tips of the branches throughout the wet season, render it strikingly handsome and conspicuous at a distance. The unexpanded flowers contain a quantity of water, hence the tree has been called the 'Fountain-tree'." (Macmillan, Handbook of tropical gardening.) For distribution later.

TRITICUM AESTIVUM. (Poaceae.) 31780-791. Seeds of wheat from Chinese Turkestan. Twelve varieties of wheat all raised under irrigation and many of them on land that is quite alkaline. (Meyer's introductions.) For distribution later.

NOTES FROM FOREIGN CORRESPONDENTS.

Mr. C. V. Piper of Forage Crop Investigations, who is traveling as an agricultural explorer, writes from Cawnpore, India, under date of September 17, 1911, as follows:

"I spent eight days in Calcutta, two days in Pusa, and one day in Benares, en route here. I was greatly impressed with the files of information in Mr. Burkhill's office. As I wrote you, a recent change has put his work under Major Gage, who still is THE man to write to for things, though Mr. Burkhill actually gets most of them. Inspector General Mollison has retired and Courtney is acting, but the general impression is that the office will be abolished notwithstanding most of the men regard this as a mistake. I found a few things at the Royal Botanic Gardens, Sibpur, which are promised as soon as seed is ripe. They have young plants of Pueraria tuberosa for us, to be forwarded in the near future. Burkhill told me Melocanna was fruiting in great abundance this year, so I wrote to the Director of Agriculture in Dacca to secure us a supply and also, if possible, the soft grained varieties of Coix. Burkhill has quite a series of them, and they impress me as of possible value to our southern states. At Pusa is the Imperial Department of Agriculture for India. The work is mostly research, Leather in soils, Hutchison in soil bacteriology, Butler in mycology, Howard in Plant breeding, etc. There is little field work of importance outside of Howard's admirable work with wheats, sesame, jute, roselle, etc., the other field plots being mainly for illustration and containing nothing of special

interest. Among the things I secured or am promised are, 'Japanese' sorghum, a peculiar drooping broomcorn affair, Indigofera linifolia, a very promising forage legume, and Dalbergia sissoo, a handsome leguminous tree with wood of high value. It stands frost and should do well in California. Howard's bred stuff in roselle and sesame may yield some good things. He has also a great lot of young mangos, but none have fruited yet, also a jujube reputed to be seedless, but this also has not yet fruited. The institution is yet very young, but they have a splendid area of land and fine buildings. The whole Ganges Valley, from Calcutta here, contains great numbers of mango trees, singly and in groves. Indeed, they are the most conspicuous feature of the landscape. Most of them are seedlings, and, everyone agrees, are not comparable in quality with those on the Bombay side. At Calcutta they have colored plates of all that have fruited at Sibpur. If you will make the request, I am certain Major Gage will prepare and send you a copy. I have a full list of their varieties and the opinion of Mr. Lane, the Superintendent, of their relative merits. I shall secure similar lists wherever they are investigating the fruit, so that you may know just what to get and where to get them."

Mr. Piper writes also from Dehra Dun, Sept. 22:

"At Cawnpore there is a splendid new agricultural college very well equipped, but very poorly manned, that is as to numbers. The only field crop work is that of Leake on cottons and wheats, the latter in cooperation with Howard of Pusa. Leake's efforts with cotton are to improve the Indian varieties, although he also thinks the Americans can be acclimatized. His work impressed me as being very excellent. He certainly has made marked advance in improvement and incidentally cleared up some of the confusion as to species. His aim is to produce a cotton that will spin forties, and I believe he has already reached that end in his best varieties. Of the wheats, I can say nothing, as they are not now growing, but most of the results up to to-day have been published by Howard.

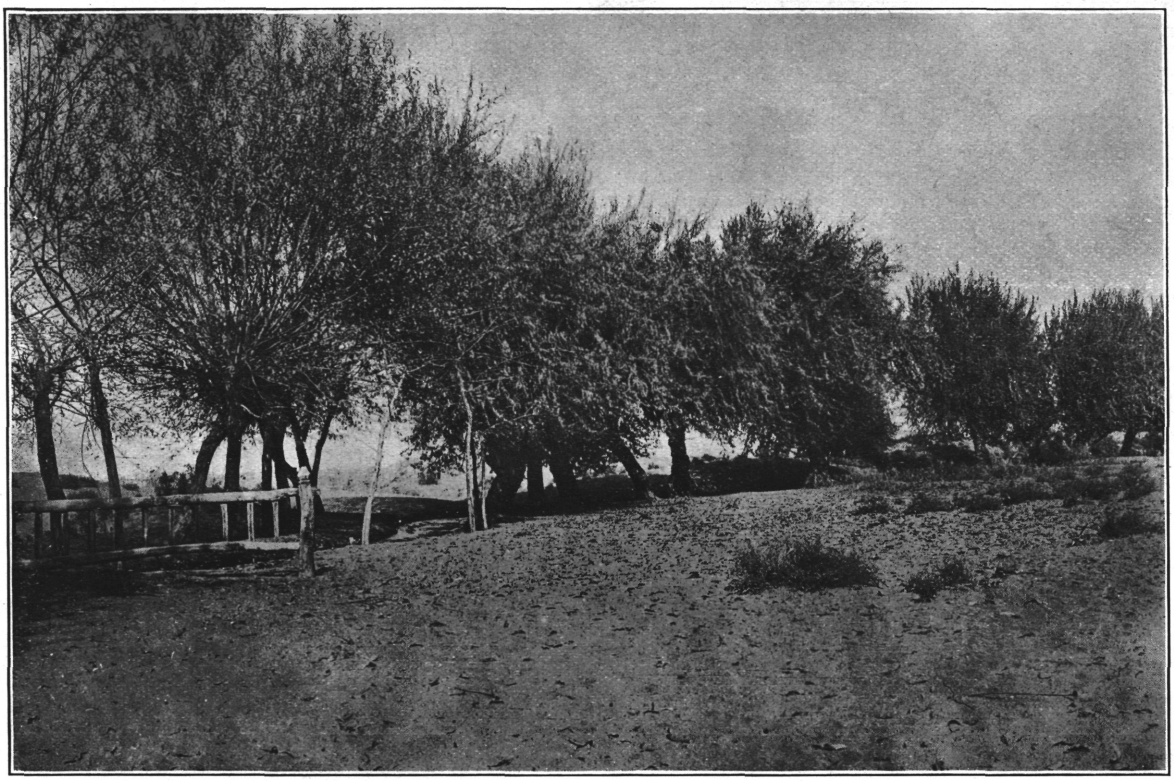
"At Lucknow I was much pleased with Mr. H. J. Davies and his work at the Horticultural Gardens. He has a great variety of things and all in excellent shape. I have a full list of his mangos and his opinion of each so far as they have fruited. At both Cawnpore and Lucknow I was surprised at the luxurious growth of native grasses, several of which seem to me excellent. I have secured seed of a number and made arrangements to get others later. Their value will be primarily in natural pastures in the South, provided they have the necessary aggressiveness like Bermuda grass. Three

pasture legumes, Zornia diphylla, Alysicarpus sp., and Indigofera linifolia, all small plants which make a dense growth like Japan clover, also seem to me very promising. All are considered excellent pasture plants, and with the exception of the Alysicarpus, are entirely new to me, and I can find no reference to their value in Indian literature. The fact of the matter is that nearly everything written on Indian forage is almost purely herbarium matter, and but little attention has been paid to the opinions of stock people, most of them, of course, natives. To my surprise, I met Hartless of Saharanpur here and have spent the day with him. He has the care of superintending the improvement of the grounds about the Viceroy's cottage here. He is a very pleasant man with strong pro-American proclivities. He talks of coming to America when his term is out here in four years. I find him a fountain of horticultural knowledge and I expect to learn much from him. Mr. Hole, the Forest Botanist here, is the first man I have found interested in the natural forage. He is struggling with the problem of bettering the ranges in the forest reserves and will get us seeds of any Indian grasses in return for any tropical American grasses likely to help out here."

Prof. Piper also writes September 28 that "Saharanpur is only a short distance from the Himalayan foothills and the mercury commonly goes down to about 20° in the winter. It is on this account that both tropical and temperate trees can be grown here successfully. It is quite strange to see cherries, plums, pears, and even apples growing alongside mangos, dates, guavas, etc. In a general way it is comparable to Chico so far as temperature is concerned, possibly a little hotter in summer, and hardly so cool in winter. Judging from this place, why won't mangos do well in California?"

Prof. Piper, returning from India, writes November 7 comparing Bangalore and Ootacamund, which he had just visited, with southern California, and in answer to our queries as to the best means of making mangos fruit, says, "I asked that question everywhere with practically no results. Mr. Krumbiegel, however, says pruning helps."

PARAGUAY. Capilla Horqueta. Under date of October 2 Mr. Thomas R. Gwynn writes that he has found that a species of Cocos furnishes a better fiber than the "caraguatá", besides furnishing oil, starch, posts, etc.



ELAEAGNUS ANGUSTIFOLIA. OLEASTER.

"A row of very old oleasters planted along an irrigation canal, benefiting the grain fields in the vicinity by protecting them against the scorching desert winds; also preventing the irrigation canal from silting up by keeping its banks firm by means of their masses of roots." From photograph by Mr. Frank N. Meyer, taken near Guma, Chinese Turkestan, November 16, 1910.

Although in his description Mr. Meyer discusses fully the multifarious uses of this very interesting plant, and calls attention to two of its especially valuable characteristics, its remarkable drought resistance, and its value as a fixer of nitrogen, he probably fails to do justice to the very considerable fruit value of the large-fruited forms. This photograph gives no adequate idea of the considerable size to which the tree sometimes grows, as it not infrequently attains a circumference of ten feet at a height of five feet above the ground, with a height of twenty to twenty-five feet.

Issued December 2, 1911.